Міністерство освіти і науки України
Харківська національна академія міського господарства

Changing the properties of the AutoCAD entities: constructing park plan variants

Guidance for laboratory works for “Informatics and computer modeling basics” course /for foreign students of 2nd year studying by orientation 6.060102 «Architecture»/

Харків – ХНАМГ – 2009

Зміна властивостей примітивів AutoCAD: побудова варіантів плану парку: Методичні вказівки до виконання лабораторних робіт з курсу “Інформатика і основи комп'ютерного моделювання” (англ.) /для студентів 2 курсу напряму підготовки 6.060102 «Архітектура»/ Укл.: Бочаров Б.П., Яковицький І. Л., Воєводіна М.Ю., Левіков Ю.В.– Х.: ХНАМГ, 2008. – 13с.

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Theme**: Changing the properties of the AutoCAD entities: constructing park plan variants**

Purpose: **skills of entities creating and editing developing, working with layers, learning to change the properties of objects**

Work order:

1. Start AutoCAD and open the drawing tsk1.dwg.
2. Create a new layer PLAN1.
3. Copy all the drawing objects into a free area.
4. Remove the copy of all the drawing objects into the layer PLAN1.
5. On every object in the layer PLAN1, change the COLOR property (this property of all the objects must have the initial value BYLAYER). The color of every object must correspond to the color of the layer in which this object has been created in.
6. Think over the layout of the objects in the park.
7. Using the MOVE command, put the stadium, the theater and the circus into proper places.
8. Place a few booths and flowerbeds into the park.
9. Using polylines of different widths, draw avenues, roads and paths.
10. Create a new layer PLAN2.
11. Copy all the objects of the layer PLAN1 into a free area.
12. Remove the objects copies into the layer PLAN2.
13. Create a new variant of the park planning (pp. 6-9).
14. Save the drawing in the personal folder and compress it (Zip).
15. Save this archive in the Academy distance learning system.

Overview of Object Properties

Every object you draw has properties. Some properties are general and apply to most objects; for example, layer, color, linetype, and plot style. Other properties are object-specific; for example, the properties of a circle include radius and area, and the properties of a line include length and angle.

Most general properties can be assigned to an object by layer or can be assigned to an object directly.

- When a property is set to the value BYLAYER, the object is assigned the same value as the layer on which it is drawn. For example, if a line drawn on Layer0 is assigned the color BYLAYER, and Layer0 is assigned the color Red, the line is red.
- When a property is set to a specific value, that value overrides the value set for the layer. For example, if a line drawn on Layer0 is assigned the color Blue, and Layer0 is assigned the color Red, the line is blue.

There are eight general properties common to all objects. All other object properties are specific to the type of object.

The following general properties are common to most objects and custom objects (third-party application objects based on AutoCAD API standards).

Color

Specifies the color for objects. Selecting Select Color in the color list displays the Select Color dialog box (see COLOR).

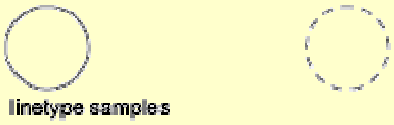
You can use the Select Color dialog box to define the color of objects by selecting from the 255 AutoCAD Color Index (ACI) colors, true colors, and color book colors.

Layer

Specifies the current layer of the object. The list shows all layers in the current drawing (see LAYER).

Linetype

Specifies the current linetype of the object. The list shows all linetypes in the current drawing (see LINETYPE).



Linetype Scale

Specifies the linetype scale factor of the object (see LTSCALE).

Plot Style

Lists NORMAL, BYLAYER, BYBLOCK, plus any plot styles contained in the current plot style table (see PLOTSTYLE).

Lineweight

Specifies the lineweight of the object. The list shows all available lineweights in the current drawing (see LWEIGHT).

Hyperlink

Attaches a hyperlink to a graphical object. If a description has been assigned to the hyperlink, the description is displayed. If no description has been assigned, the URL is displayed (see HYPERLINK).

Thickness

Sets the current 3D thickness. This property does not apply to all objects (see CHPROP).

The PROPERTIES command controls properties of existing objects

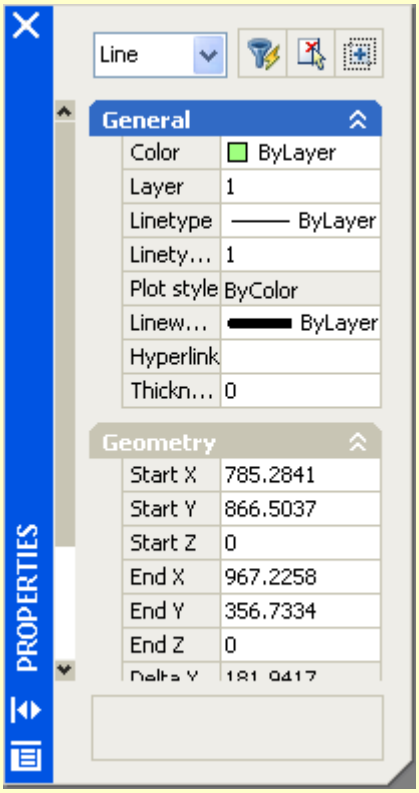
Toolbar: Standard 

Menu: Modify▸Properties.

Shortcut menu: Select the objects whose properties you want to view or modify, right-click in the drawing area, and click Properties.

Command entry: properties

The Properties palette is displayed. The Properties palette lists properties of the selected object or set of objects.



You can also view or modify properties of third-party application objects that are based on AutoCAD application programming interface (API) standards.

The Properties palette lists the current settings for properties of the selected object or set of objects. You can modify any property that can be changed by specifying a new value.

- When more than one object is selected, the Properties palette displays only those properties common to all objects in the selection set.
- When no objects are selected, the Properties palette displays only the general properties of the current layer, the name of the plot style table attached to the layer, the view properties, and information about the UCS.

You can double-click most objects to open the Properties palette when the DBLCLKEDIT system variable is on (the default). The exceptions include blocks

and attributes, hatches, gradient fills, text, multilines, and xrefs. If you double-click any of these objects, an object-specific dialog box displays instead of the Properties palette.

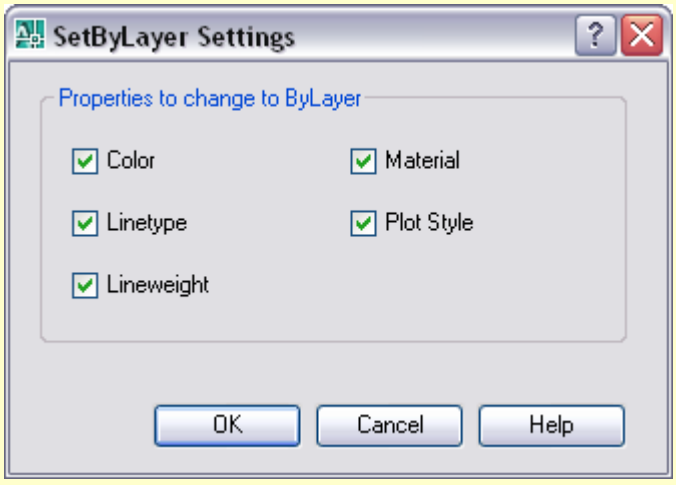
Note. The DBLCLKEDIT system variable must be on and the PICKFIRST system variable must be on (set to 1, the default) for double-clicking to work.

Using the SETBYLAYER command, you can change specified properties to ByLayer for selected objects. Objects that have a ByBlock setting can also be changed to ByLayer. When an object's properties are not set to ByLayer, those objects do not display the layer property overrides that were set by viewport.

From the SetByLayer Settings dialog box, you can specify which object property settings are changed to ByLayer.

The SETBYLAYERMODE system variable stores the property settings that are to be changed when the SETBYLAYER command is used.

SetByLayer Settings Dialog Box changes property overrides for color, linetype, lineweight, material, and plot style to ByLayer for selected objects and inserted blocks on unlocked layers.



- Color changes the color of selected objects to ByLayer. (SETBYLAYERMODE=1)
- Linetype changes the linetype of selected objects to ByLayer. (SETBYLAYERMODE=2)

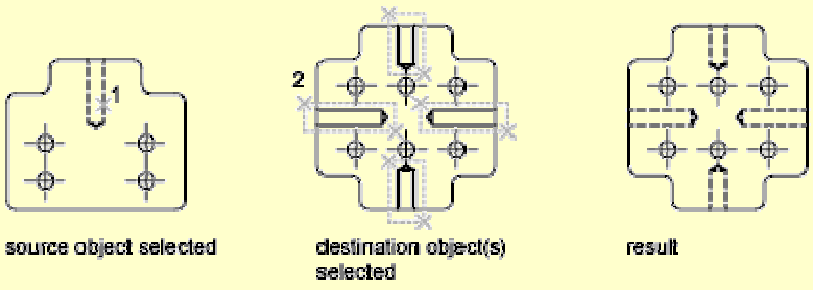
- Lineweight changes the lineweight of selected objects to ByLayer. (SETBYLAYERMODE=4)
- Material changes the material of selected objects to ByLayer. (SETBYLAYERMODE=8)
- Plot Style changes the plot style of selected objects to ByLayer. This option is available in named plot style drawings. (SETBYLAYERMODE=16)

Copy Properties Between Objects

You can copy some or all properties of one object to other objects using Match Properties.

The types of properties that can be copied include, but are not limited to, color, layer, linetype, linetype scale, lineweight, plot style, viewport property overrides, and 3D thickness.

By default, all applicable properties are automatically copied from the first object you selected to the other objects. If you don't want a specific property or properties to be copied, use the Settings option to suppress the copying of that property. You can choose the Settings option at any time during the command.



The MATCHPROP command applies the properties of a selected object to other objects

Toolbar: Standard 

Menu: Modify▸Match Properties

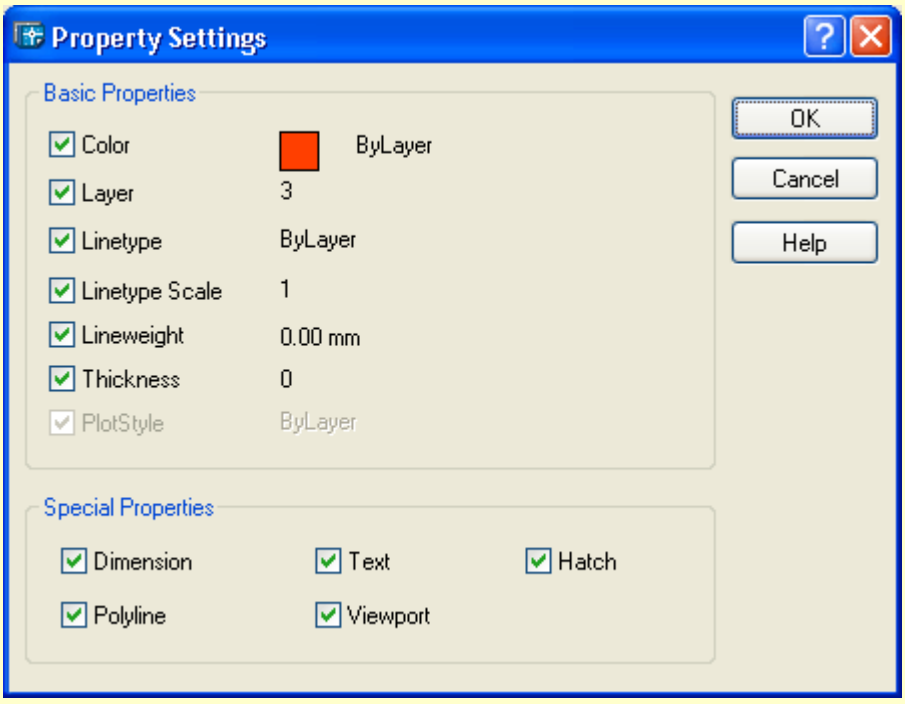
Command entry: matchprop

Destination Object(s)

Specifies the objects to which you want to copy the properties of the source object. You can continue selecting destination objects, or press ENTER to apply the properties and end the command.

Settings

Displays the Property Settings dialog box, in which you can control which object properties to copy to the destination objects. By default, in the Property Settings dialog box all object properties are selected for copying.



Color changes the color of the destination object to that of the source object. Available for all objects.

Layer changes the layer of the destination object to that of the source object. Available for all objects.

Linetype changes the linetype of the destination object to that of the source object. Available for all objects except attributes, hatches, multiline text, points, and viewports.

Linetype Scale changes the linetype scale factor of the destination object to that

of the source object. Available for all objects except attributes, hatches, multiline text, points, and viewports.

Lineweight changes the lineweight of the destination object to that of the source object. Available for all objects.

Thickness changes the thickness of the destination object to that of the source object. Available only for arcs, attributes, circles, lines, points, 2D polylines, regions, text, and traces.

Plot Style changes the plot style of the destination object to that of the source object. If you are working in color-dependent plot style mode (PSTYLEPOLICY is set to 1), this option is unavailable. Available for all objects, except those with the Jitter edge modifier applied.

Dimension. In addition to basic object properties, changes the dimension style and annotative properties of the destination object to that of the source object. Available only for dimension, leader, and tolerance objects.

Polyline. In addition to basic object properties, changes the width and linetype generation properties of the destination polyline to those of the source polyline. The fit/smooth property and the elevation of the source polyline are not transferred to the destination polyline. If the source polyline has variable width, the width property is not transferred to the destination polyline.

Text. In addition to basic object properties, changes the text style and annotative properties of the destination object to that of the source object. Available only for single-line and multiline text objects.

Viewport. In addition to basic object properties, changes the following properties of the destination paper space viewport to match those of the source viewport: on/off, display locking, standard or custom scale, shade plot, snap, grid, and UCS icon visibility and location. The settings for clipping and for UCS per viewport and the freeze/thaw state of the layers are not transferred to the destination object.

Hatch. In addition to basic object properties, changes the hatch properties (including its annotative properties) of the destination object to that of the source

object. To match the hatch origin, use Inherit Properties in HATCH or HATCHEDIT. Available only for hatch objects.

Control the Display Properties of Certain Objects

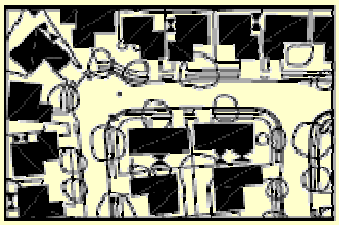
You can control how overlapping objects and certain other objects are displayed and plotted.

You can simplify the display of certain kinds of objects in order to speed performance.

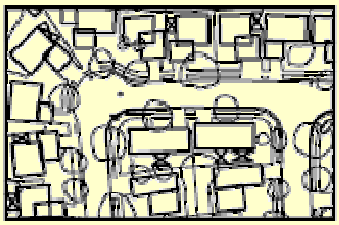
Display performance is improved when wide polylines and donuts, solid-filled polygons (two-dimensional solids), hatches, gradient fills, and text are displayed in simplified form. Simplified display also increases the speed of creating test plots.

Turn Off Solid Fill

When you turn off Fill mode, wide polylines, solid-filled polygons, gradient fill, and hatches are displayed in outline form. Except for patterned hatches and gradient fills, solid fill is automatically turned off for hidden view and nonplan views in three dimensions.



Fill mode on



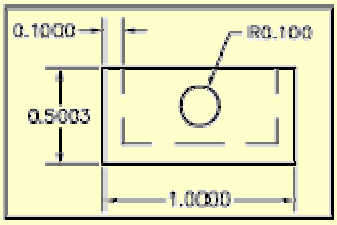
Fill mode off

Use Quick Text

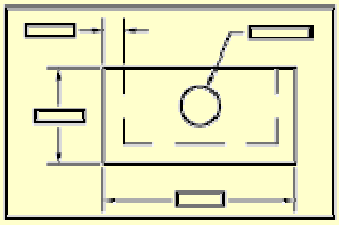
When you turn on Quick Text mode in drawings that contain a lot of text using complex fonts, only a rectangular frame defining the text is displayed or plotted.

Turn Off Lineweights

Any lineweight width that is represented by more than one pixel may slow down performance. If you want to improve display performance, turn lineweights off. You can turn lineweights on and off by choosing the LWT button on the status bar or by using the Lineweight Settings dialog box. Lineweights are always plotted at their real-world value whether their display is turned on or off.



Quick Text mode off



Quick Text mode on

Update the Display

New objects automatically use the current settings for displays of solid fill and text. Except for lineweights, to update the display of existing objects using these settings, you must use REGEN.

Навчальне видання

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